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Designing Effective Emergency Response Plans: Lessons learned from investigating two major incidents

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Abstract

Emergency response plans are an essential, yet oftentimes overlooked, layer of protection for facilities where all other layers of protection failed to prevent an incident. While catastrophic accidents such as large releases of chemicals, fires or explosions are devastating for the process industry, experience investigating numerous incidents has shown that a lack of an effective emergency response plan can lead to an unnecessary and tragic escalation of the incident. More specifically, investigation of two recent incidents: (1) 2015 explosion on the FPSO Cidade São Mateus and (2) 2013 West Texas Explosion; will demonstrate how the lack of emergency planning resulted in devastating consequences that could have been avoided with the proper planning. More specifically, the FPSO explosion resulted in 9 fatalities, eight of which were responding to a leak of condensate, and the Danvers explosion that resulted 15 fatalities, most of whom were responding to the fire that preceding the devastating explosion. Lessons will show that deficiencies in the emergency response plan or implementation of the plan resulted in these fatal consequences that could have been avoided. In addition, while emergency response plans consider "maximum credible" scenarios, past events have shown that low probability high consequences should also be at least considered. Advanced tools will be discussed that can assist an owner/operator prepare an effective emergency response plan.